

LISTING OF ALLOWED CLAIMS

U.S. Serial No. 10/084,030

1. Apparatus for providing granular material to a loading hopper preparatory to processing comprising:
 - a. a receptacle for receiving said material prior to processing thereof by machinery supplied by said hopper, including first valve means for selectably connecting said receptacle to vacuum or ambient air;
 - b. means for drawing vacuum in said receptacle;
 - c. conduit means for connecting said receptacle to a supply of said granular material;
 - d. second valve means for selectably permitting material flow from said receptacle into said hopper;
 - e. means for temporally adjustably closing said first valve means and opening said second valve means responsively to detected presence of a suitable amount of material in said receptacle.
2. Apparatus of claim 1 further comprising means for directionally deflecting flow of material into said receptacle from said conduit thereby reducing kinetic energy of said material.
3. Apparatus for providing plastic resin material to a plurality of loading hoppers and maintaining said material in said hoppers at or above preselected levels preparatory to delivery of said material therefrom for processing comprising:

- a. a plurality of temporary material storage receptacles for receiving said plastic resin material prior to processing thereof by machinery supplied by respective ones of said hoppers;
 - b. means for drawing vacuum in said receptacles;
 - c. first valve means selectably connecting said receptacles with said vacuum drawing means;
 - d. conduit means for connecting said receptacles to respective supplies of plastic resin material;
 - e. second valve means for selectably permitting plastic resin material flow from said receptacles into associated hoppers;
 - f. adjustable shutoff time control means for closing said first and second valve means, thereby permitting air flow into respective receptacles responsively to detected criteria respecting level of said plastic resin material in a receptacle of interest.
- 4. Apparatus of claim 3 wherein said first and second valve means are actuated by pneumatic piston-cylinder combinations.
 - 5. Apparatus of claim 3 wherein said second valve means is a slide gate valve.
 - 6. Apparatus of claim 3 wherein said second valve means is a flap maintained closed by gravity
 - 7. Apparatus of claim 3 further comprising means for directionally plurally deflecting flow of airborne plastic resin material drawn into said receptacles from said conduit means thereby dissipating kinetic energy of said moving airborne resin material.

8. Apparatus of claim 3 wherein said receptacle comprises means for connecting said receptacle to vacuum or ambient by simultaneously respectively opening one of said vacuum line connection means and said ambient air connection means and closing a remaining one of said means.
9. Apparatus of claim 3 further comprising means for connecting said material supply conduit to said receptacle including a plate inclined at an angle to the flow direction of material drawn to said receptacle for downwardly deflecting horizontally flowing material entering said receptacle.
10. A method for providing plastic resin material to a loading receptacle and periodically replenishing said receptacle with said material, comprising:
 - a. drawing a vacuum within a receptacle thereby inducing plastic resin material flow from a plastic resin material supply into said receptacle and marking the commencement of said drawing as a vacuum drawing starting time; and
 - b. stopping flow of material into said receptacle and marking said stoppage as a vacuum drawing stopping time responsively to material level within said receptacle.
11. The method of claim 10 further comprising repeatedly drawing said vacuum for a filling period defined by the difference between said starting and stopping times and adjusting said filling period if needed by changing said stopping time responsively to desired material level in said receptacle.

12. The method of claim 10 wherein changing said filling period responsively to desired material level in said receptacle is performed by actuating a switch during said filling period and deactuating said switch to define a new stopping time.
13. The method of claim 10 further comprising directionally deflecting plastic material flowing into said receptacle upon entry thereinto, thereby reducing kinetic energy of said flowing material.
14. A method for providing plastic resin material to a plurality of loading receptacles and periodically replenishing said receptacle with said material, comprising:
 - a. drawing vacuum within said receptacles thereby inducing plastic resin material flow from a plastic resin material supply into each of said receptacles in sequence and marking the commencement of said drawing for each of said receptacles as a vacuum drawing starting time for a receptacle of interest; and
 - b. stopping flow of material into said receptacles and separately marking said stoppage as a vacuum drawing stopping time for each of said receptacles responsively to material level within each of said receptacles.
15. The method of claim 14 further comprising serially repeatedly drawing said vacuum for each of said receptacles for a filling period defined by the difference between said starting and stopping times and adjusting said filling period separately for each of said receptacles if needed by changing said stopping time responsively to observation of a desired material level in said receptacle.
16. The method of claim 15 wherein changing said filling period responsively to observation of a desired material level in a selected one of said receptacles is

performed by actuating a switch during said filling period and deactuating said switch to define a new stopping time for said selected receptacle.

17. The method of claim 14 wherein a single switch is used to define a new stopping time for all of receptacles, as needed.
18. The method of claim 10 further comprising thrice directionally deflecting said material as said material enters said receptacle.
19. The method of claim 14 further comprising thrice directionally deflecting said material as said material enters said receptacle.
20. Apparatus of claim 1 wherein said receptacle includes a vertically extending transparent portion.
21. Apparatus of claim 20 wherein ends of said receptacle are castings.
22. Apparatus of claim 21 wherein said first and second valve means are within said castings.
23. Apparatus of claim 7 wherein said baffle includes a generally parallel piped-shaped housing into which said material entrained in air enters.
24. Apparatus of claim 7 wherein said baffle consists of planar surfaces.
25. Apparatus of claim 1 wherein said means for temporally adjustably closing said first valve and opening said second valve operates responsively to optically detected presence of a suitable amount of material in said receptacle.
26. Apparatus of claim 3 wherein said shutoff time control means operates responsively to optically detected criteria.

27. Apparatus of claim 1 wherein said receptacle includes a transparent wall portion in the area of the surface of said granular material when said suitable amount of material is present in said receptacle.
28. Granular plastic resin material processing apparatus comprising:
- a. a press for molding said granular plastic resin material;
 - b. a gravimetric blender for supplying a homogeneous blend of granular plastic resin material to said press; and
 - c. pneumatic feed means for supplying at least one component of said granular plastic resin material to said blender, comprising:
 - i. receptacle for receiving and temporarily storing said component prior to blending of same with other components by said blender including valve means for connecting said receptacle to vacuum and to ambient air;
 - ii. means for drawing vacuum in said receptacle;
 - iii. conduit means for connecting said receptacle to a granular plastic resin material supply of said component;
 - iv. valve means for permitting granular plastic resin material flow from said receptacle to said blender; and
 - v. means for temporally adjustably closing said vacuum/ambient valve means and opening said receptacle/blender valve means responsively to presence of a suitable amount of said granular plastic resin material component being in said receptacle.

29. A method for providing plastic resin material to a plurality of loading receptacles and periodically replenishing said receptacle with said material, comprising:
- a. drawing vacuum within said receptacles thereby inducing plastic resin material flow from a plastic resin material supply into said receptacles in sequence and marking commencement of said drawing for each of said receptacles as a vacuum drawing starting time for a receptacle of interest; and
 - b. stopping flow of material into said receptacles and marking said stoppage as a vacuum drawing stopping time for each of said receptacles responsively to material level within each of said receptacles.
30. Granular plastic resin material processing apparatus comprising:
- a. a press for molding said granular plastic resin material; and
 - b. pneumatic feed means for supplying granular plastic resin material to said press, comprising:
 - i. receptacle for receiving and temporarily storing said resin material including valve means for connecting said receptacle to vacuum and to ambient air;
 - ii. means for drawing vacuum in said receptacle;
 - iii. conduit means for connecting said receptacle to said press;
 - iv. valve means for permitting granular plastic resin material flow from said receptacle to said press; and

- v. means for temporally adjustably closing said vacuum/ambient valve means and opening said receptacle/press valve means responsively to presence of a suitable amount of said granular plastic resin material component being in said receptacle.